



- 1. A method of creating a decision engine including a Bayesian network, comprising:
  - Retrieving data from a client database and forming a focus database, wherein the retrieving includes retrieving data from a static customer database and retrieving data from a data stream;
  - Employing an expectation maximization algorithm to provide a value to valueless records in the focus database;
  - Applying a set of initial rules to the focus database to form at least two nodes;
  - Applying a first learning process to determine a set of arcs to be applied between the at least two nodes;
  - Applying a second learning process to determine a set of states to be applied within each node;
  - Applying a third learning process to determine a set of probabilities applicable to the states learned in the second learning process; and
  - Applying a fourth learning process to update a structure of the at least two nodes, the set of arcs, the set of states within each node, and the set of probabilities for the states.
- The method of claim 1, wherein the first learning process includes parameter learning.
- 3. The method of claim 1, wherein the second learning process includes state learning.

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- 4. The method of claim 1, wherein the third learning process includes parameter learning.
- 5. The method of claim 1, wherein the fourth learning process includes structural learning.
- 6. The method of claim 1, wherein the client database is a relational database.
- The method of claim 1, further comprising creating, accessing, and modifying an AD tree.
- 8. The method of claim 1, further comprising employing an expectation maximization algorithm to provide a value to valueless records in the client database.
- 9. (Cancelled).
- 10. (Cancelled).
- 11. The method of claim 1, further comprising preanalyzing the customer database to create a data management system.
- 12. The method of claim 1, wherein said forming includes counting the occurrences of possible combinations of data in the client database, and determining the frequencies of the data.
- 13. The method of claim 1, further comprising performing prior discretization of data in the client database to lower noise in the data.

- 14. The method of claim 1, further comprising applying expert knowledge to data in the focus database.
- 15. The method of claim 3, wherein the applying a state learning includes applying a clustering algorithm.
- 16. The method of claim 4, wherein the applying a structural learning includes applying a process selected from one of the set consisting of: directed Pareto, naïve Bayesian, directed Bayesian, recursive Pareto, whole Pareto, single MDL, multiple MDL, recursive naïve Bayesian, and whole Bayesian.
- 17. The method of claim 6, wherein the initial rules include a rule that columns within the client database correspond to the at least two nodes.
- 18. (Cancelled).

- 19. A method of creating a decision engine including a Bayesian network, comprising:
  - Retrieving data from a client database to form a focus database, wherein the retrieving includes retrieving data from a static customer database and retrieving data from a data stream;
  - Employing an expectation maximization algorithm to provide a value to valueless records in the focus database;
  - Applying a Pareto learning process to the focus database to form at least two nodes, a set of arcs to be applied between the at least two nodes, a set of states to be applied within each node, and a set of probabilities applicable to the states; and
  - Applying a learning process to update a structure of the at least two nodes, the set of arcs, the set of states within each node, and the set of probabilities for the states.

- 20. A method of using a decision engine including a Bayesian network, comprising:
  - Retrieving data from a client database and forming a focus database, wherein the retrieving includes retrieving data from a static customer database and retrieving data from a data stream;
  - Employing an expectation maximization algorithm to provide a value to valueless records in the focus database;
  - Applying a set of initial rules to the focus database to form at least two nodes;
  - Applying a first learning process to determine a set of arcs to be applied between the at least two nodes;
  - Applying a second learning process to determine a set of states to be applied within each node;
  - Applying a third learning process to determine a set of probabilities applicable to the states learned in the second learning process;
  - Applying a fourth learning process to update a structure of the at least two nodes, the set of arcs, the set of states within each node, and the set of probabilities for the states;
  - Applying evidence to at least one of the nodes; and
    Updating the structure according to the applied evidence
    using at least one of the first, second, third, or
    fourth learning processes.
- 21. The method of claim 20, further comprising displaying at least one of the set of probabilities applicable to the states in at least one of the nodes.

- 22. The method of claim 20, further comprising creating, accessing, and modifying a decision tree.
- 23. The method of claim 22, wherein a target of the modifying is determined using an intelligent decision analysis algorithm.

- 24. A computer program, residing on a computer-readable medium, for creating and using a decision engine including a Bayesian network, the computer program comprising instructions for causing a computer to:
  - Retrieve data from a client database and form a focus database, wherein the retrieval includes a retrieval of data from a static customer database and a retrieval of data from a data stream;
  - Employ an expectation maximization algorithm to provide a value to valueless records in the focus database;
  - Apply a set of initial rules to the focus database to form at least two nodes;
  - Apply a first learning process to determine a set of arcs to be applied between the at least two nodes;
  - Apply a second learning process to determine a set of states to be applied within each node;
  - Apply a third learning process to determine a set of probabilities applicable to the states learned in the second learning process; and
  - Apply a fourth learning process to update a structure of the at least two nodes, the set of arcs, the set of states within each node, and the set of probabilities for the states.